



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/871,691	06/04/2001	Michael C. Pirrung	1579-373	9090
------------	------------	--------------------	----------	------

23117 7590 04/21/2003

NIXON & VANDERHYE, PC
1100 N GLEBE ROAD
8TH FLOOR
ARLINGTON, VA 22201-4714

EXAMINER

TRAN, MY CHAU T

ART UNIT

PAPER NUMBER

1639

DATE MAILED: 04/21/2003

13

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/871,691

Applicant(s)

PIRRUNG ET AL.

Examiner

My-Chau T. Tran

Art Unit

1639

-- The MAILING DATE of this communication appears in the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 1639

DETAILED ACTION

1. Applicant's amendment filed 4/14/03 in Paper No. 11 is acknowledged and entered.

Claims 1, 7, and 9 are amended. Claims 1-20 are pending.

Withdrawn Rejections

2. The previous objection for claims 1, 7, and 9 has been withdrawn in view of applicant's amendments of claims 1, 7, and 9.

3. Claims 1-20 are treated on the merit in this Office Action.

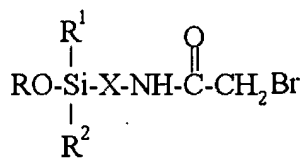
4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Maintained Rejections

Claim Rejections - 35 USC § 102

5. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Zhao (US Patent 6,448,010 B1).

The examiner has interpreted the structure of Formula I to be as follows:

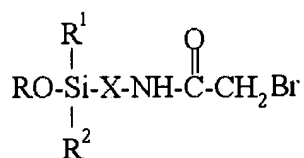


Art Unit: 1639

Zhao teaches a nucleic acid array and method of anchoring oligonucleotide to the substrate (col. 2, lines 1-8; col. 3, lines 19-29). The substrate is glass (col. 3, line 26) (referring to claim 4). The glass substrate contains a bromoacetamide derivatized silane glass surface (col. 3, lines 62-67 to col. 4, lines 1-2; fig. 4) (referring to claims 1-10). The linker group is $(CH_2)_n$ in which n is 3 (fig. 4). The oligonucleotide is modified with a nucleophile such as a thiophosphate group (col. 3, lines 29-32 and 44). The attachment of the oligonucleotide is by reacting the thiophosphate to the bromoacetamide derivatized silane glass surface (col. 4, lines 13-15; fig. 6) (referring to claims 11-12). The oligonucleotide is attached at the 5' end (col. 5, lines 12-19). The oligonucleotide is labeled with a detectable dye such as a fluorescent dye (col. 5, lines 1-2) (referring to claims 17-18). The nucleic acid array is formatted into a kit (col. 2, lines 9-11) (referring to claims 19-20). Therefore, the nucleic acid array and method of anchoring oligonucleotide to the substrate of Zhao anticipates the presently claimed invention.

6. Claims 1-18 are rejected under 35 U.S.C. 102(a) as being anticipated by Pirrung et al. (*Langmuir*, 12/4/1999 (Web Published), 16:2185-2191).

The examiner has interprets the structure of Formula I to be as follows:



Pirrung et al. teaches a method of attaching oligodeoxyribonucleotides (DNA) to glass involving bromoacetamide/phosphorothioate linking chemistry (abstract). The glass slide is

Art Unit: 1639

derivatized with bromoacetamidossilanes (pg. 2186, right col., lines 1-25). The DNA is immobilized onto the glass slide by nucleophilic reactions with the bromoacetyl group in which the DNA is 5'-phosphorothioate DNA bearing a 3'-fluorescein dye (pg. 2186, right col., lines 31-34). The attachment of the oligonucleotides occurs at the 5'-ends (pg. 2186, left col., lines 44-45).

7. Claims 1-20 are rejected under 35 U.S.C. 102(f) because the applicant did not invent the claimed subject matter. The authorship of the published article in *Langmuir* includes Janice D. Davis, which is not listed as one of the inventor in the instant application. Since the other authors, Michael C. Pirrung and Amy L. Odenbaugh are listed as the inventors in the instant application.

Response to Arguments

8. Applicant's arguments in view of the rejection under 35 U.S.C. 102(e) of Claims 1-20 as being anticipated by Zhao (US Patent 6,448,010 B1) filed on 4/14/03 have been fully considered but they are not persuasive.

Applicant contends that the rejection under 35 U.S.C. 102(e) will be overcome by a declaration. However since the Office did not receive such a declaration, the rejection is maintained and the argument is not persuasive.

Art Unit: 1639

9. Applicant's arguments in view of the rejection under 35 U.S.C. 102(a) of Claims 1-20 as being anticipated by Pirrung et al. (*Langmuir*, 12/4/1999 (**Web Published**), 16:2185-2191) filed on 4/14/03 have been fully considered but they are not persuasive.

Applicant contends that the rejection under 35 U.S.C. 102(a) will be overcome by a declaration. However since the Office did not receive such a declaration, the rejection is maintained and the argument is not persuasive.

10. Applicant's arguments in view of the rejection under 35 U.S.C. 102(f) of Claims 1-20 filed on 4/14/03 have been fully considered but they are not persuasive.

Applicant contends that the rejection under 35 U.S.C. 102(f) will be overcome by a declaration. However since the Office did not receive such a declaration, the rejection is maintained and the argument is not persuasive.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 1639

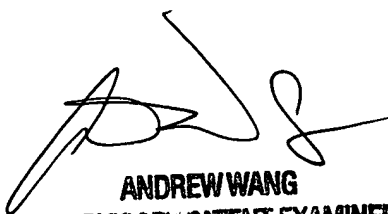
however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to My-Chau T. Tran whose telephone number is 703-305-6999. The examiner is on ***Increased Flex Schedule*** and can normally be reached on Monday: 8:00-2:30; Tuesday-Thursday: 7:30-5:00; Friday: 8:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew J. Wang can be reached on 703-306-3217. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9307 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1123.

mct
April 18, 2003



ANDREW WANG
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600